

22nd International Symposium on Very High Energy Cosmic Ray Interactions (ISVHECRI 2024)

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The status and overview of LHAASO [Online]

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LHAASO is a hybrid detector experiment, its full array start operation in July 2021, becoming the leading Ultra-High-Energy (UHE) gamma-ray detection facilities with the highest detection sensitivity and all-sky monitoring capability in the world. The detector operates very stably and has collected a large amount of high-quality data sets. LHAASO has found more than 40 Ultra-High-Energy (UHE) cosmic accelerators within the Milky Way, with the highest energy photon reaching 1.4 quadrillion electron-volts, the highest energy photon ever observed. So many UHE gamma ray celestial body exit in our galaxy, prompting us to rethink the mechanism by which high-energy particles are generated and propagated in the Milky Way. It will also allow scientists to explore extreme astrophysical phenomena and their corresponding processes, thus enabling examination of the basic laws of physics under extreme conditions. Multi-parameter observation of showers allows LHAASO to measurement the single elements energy spectrum, elemental composition and anisotropy with high resolution, which give us an excellent opportunity to understand the origin, acceleration and propagation of high energy cosmic rays. In this presentation, I will introduce the current status of LHAASO's discoveries in UHE gamma ray sources and focus on introducing cosmic ray measurements. I will also introduce the future plans and prospects of LHAASO experiment.

Presenter: ZHANG, Shoushan

Session Classification: Invited talks